

REMARKS

Claims 1-9 and 11-16 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,236,368 to Johson ("Johson") in the Office Action dated October 31, 2006 (the "Action").

Applicants appreciate the Examiner's indication that Claim 10 would be allowable if rewritten in independent form. Applicants also appreciate the Examiner's clarification of the rejections in **Figure 2** on page 2 of the Action. In response, independent Claims 1, 11 and 12 have been amended to clarify that "the ground plane extender is a separate piece from the ground plane." In addition, Claim 17 and 18 have been added to the application. Support for such amendments, including the recitations of Claim 17 and 18, can be found, for example, on page 9, lines 10-33 and in Figures 2, 3 and 4.

For at least the reasons discussed below, Applicants submit that independent Claims 1, 11 and 12 are patentable over the cited prior art. In addition, Applicants submit that dependent Claims 10 and 15-18 are separately patentable.

Independent Claims 1, 11 and 12 are patentable over Johson.

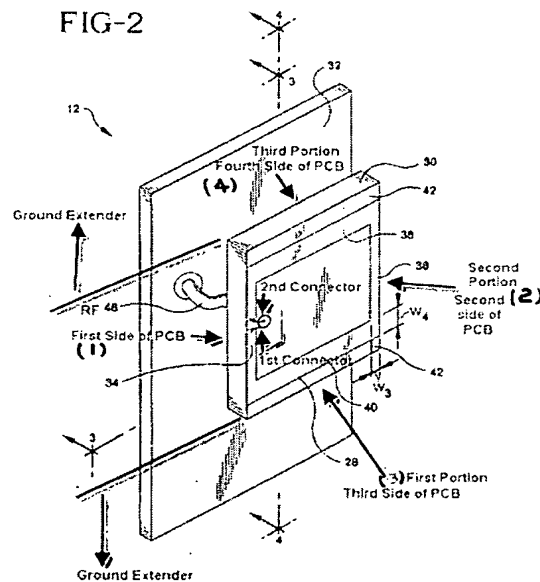
Independent Claim 1 recites an antenna device for a portable device including:

an antenna loop of conducting material having first and second ends connected to a radio frequency (RF) circuitry and a ground plane of a printed circuit board (PCB), respectively, the antenna loop being positioned opposite the ground plane; and a ground plane extender positioned at a first side of the PCB and in a longitudinal extension of the ground plane, wherein the ground plane extender is a separate piece from the ground plane.

Applicants submit that at least the above-underlined features recited in Claim 1 are not disclosed by Johson. Independent Claims 11 and 12 include recitations similar to the above-underlined features.

In response to Applicants' arguments filed in the response dated September 19, 2006, the Action states that Johson discloses a ground plane in Figure 2. *See* the Action, page 8,

and **Figure 2**, reproduced on page 2 of the Action. However, the ground plane extender identified in **Figure 2** of Johson on page 2 of the Action is clearly not "a separate piece from the ground plane" as recited in independent Claims 1, 11 and 12. **Figure 2** on page 2 of the Action from Johson with the Examiner's notations is reproduced below.



In addition, Claims 1, 11 and 12 recite that first and second ends are connected to a radio frequency (RF) circuitry and a ground plane of a printed circuit board (PCB), respectively. The Action takes the position that the loop antenna 28 of Johson is directly connected to the PCB 20 via the cable 48, and the PCB 20 connects to the ground plane 32. See the Action, page 7. Applicants respectfully disagree because Johson states that the feed point connections 44, 46 of the antenna assembly 12 connect to the transmitter electronics. See Johson, col. 4, lines 9-11 (referring to **Figure 4**). Therefore, Johson does not teach or suggest first and second ends are connected to a radio frequency (RF) circuitry and a ground plane of a printed circuit board (PCB), respectively as recited in Claims 1, 11 and 12.

For at least these reasons, Johson does not teach or suggest all of the recitations of Claim 1 and cannot anticipate or render obvious Claim 1. Claims 11 and 12 contain recitations similar to Claim 1 and are patentable for at least for the reasons discussed with respect to Claim 1. Claims 2-10 and 13-18 are patentable at least per the patentability of the claims from which they depend.

In addition, Claim 10 is separately patentable as indicated in the Action, and Claims 13 and 15-18 are separately patentable for at least the following reasons.

Claim 13 is separately patentable over Johson.

Claim 13 recites that the device is a headset. The Action takes the position that a headset is disclosed in Johson at column 1, lines 15-19. However, as noted in Applicants' arguments submitted in the Response dated September 19, 2006, column 1, lines 15-19 of Johson merely discuss that the loop antenna of Johson can be used for a hand-held radio frequency transceiver, such as a cellular telephone or PCS device. The cited portion of Johson makes no mention of a headset, and a cellular telephone as shown in **Figure 1** and discussed in the cited portion of Johson is typically much larger than a headset. Applicants submit that a hand-held device as discussed in Johson is not equivalent to a headset as recited in Claim 13. Exemplary headset dimensions are disclosed on page 11 of the current specification.

Therefore, Applicants submit that Claim 13 is separately patentable for at least these reasons, and Applicants request an indication of same.

Claim 15 is separately patentable over Johson.

Claim 15 recites that the first and second ends of the antenna loop comprise a planar portion configured to contact the radio frequency (RF) circuitry and the ground plane of the printed circuit board (PCB). The Action takes the position on page 6 that Johson discloses a planar portion on the first side of the PCB. However, the planar portion identified in the Action is not configured to contact the radio frequency circuitry or the ground plane of the printed circuit board as recited in Claim 15. As shown in Johson, the ends of the loop connector element **28** are connected to the coax cable **48** by wire feed point connections 44, 46 (See **Figure 4**).

Therefore, Claim 15 is separately patentable over Johson for at least these reasons, and Applicants respectfully request an indication of same.

Claim 16 is separately patentable over Johson.

Claim 16 recites that the first and second ends of the antenna loop are directly connected to the radio frequency (RF) circuitry and the ground plane of the printed circuit board (PCB). The Action states, "Johson discloses that the antenna loop (28) are [sic] directly connected to the radio frequency (RF) circuitry (48) and the ground plane (32) of the printed circuit board (**figure 2**).\" However, element 48 is clearly identified in Johson as a coax cable 48. In fact, the loop connector element 28 of Johson is connected to feed point connections 44, 46, which are in turn connected to a coax cable 48. Therefore, no direct connection between the antenna loop 28 and any radio frequency (RF) circuitry is shown in Johson.

Therefore, Claim 16 is separately patentable over Johson for at least these reasons, and Applicants respectfully request an indication of same.

Claim 17 is separately patentable over Johson.

Claim 17 recites that the ground plane extender is not in direct contact with the ground plane of the printed circuit board (PCB). The ground plane extender identified in Figure 2 on page 8 of the Action clearly forms a single unitary member together with the portion identified in the Action as the ground plane. As such, Johson does not teach or suggest a ground plane extender that is not in direct contact with the ground plane of the printed circuit board (PCB).

Therefore, Claim 17 is separately patentable over Johson for at least these reasons, and Applicants respectfully request an indication of same.

Claim 18 is separately patentable over Johson.

Claim 18 recites that the ground plane extender and the ground plane of the printed circuit board (PCB) together form an extended ground plane that is larger than the ground plane of the printed circuit board (PCB). As noted in the Action on pages 7-8, Johson discusses that the ground plane 32 of the antenna is illustrated as a portion of the printed circuit board (PCB) 20. Although Johson discusses that, alternatively, the ground plane 32

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may be a conductive portion of the handset housing, the battery pack **18** or a separate conductive panel, nothing in Johson teaches or suggest a ground plane extender that is a separate piece from the ground plane (Claim 1) such that the ground plane extender and the ground plane of the printed circuit board (PCB) together form an extended ground plane that is larger than the ground plane of the printed circuit board (PCB) as recited in Claim 18.

Therefore, Claim 18 is separately patentable over Johson for at least these reasons, and Applicants respectfully request an indication of same

CONCLUSION

Accordingly, Applicant submits that the present application is in condition for allowance and the same is earnestly solicited. Should the Examiner have any matters outstanding of resolution, he is encouraged to telephone the undersigned at 919-854-1400 for expeditious handling.

Respectfully submitted,

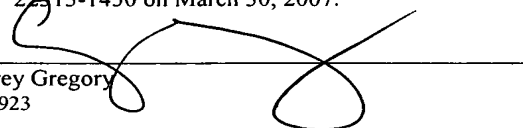


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